

What is claimed is:

SUB A17

1. A method for acquiring access to an object in an object-based system, the method comprising:

- 5 identifying a memory address value associated with the object;  
identifying a first synchronization construct that is suitable for use in granting access to the object, wherein the first synchronization construct is identified using at least part of the memory address value;  
determining when the first synchronization construct is available; and  
10 associating the first synchronization construct with the object when it is determined that the first synchronization construct is available.

2. A method for acquiring access to an object as recited in claim 1 wherein identifying a first synchronization construct that is suitable for granting  
15 access to the object includes:

indexing into a data structure using the at least part of the memory address value, the data structure being arranged to associate a plurality of synchronization constructs with information relating to address locations in the object-based system, the plurality of synchronization constructs including the first synchronization  
20 construct, wherein at least one of the plurality of synchronization constructs is associated with more than one address location.

3. A method for acquiring access to an object as recited in claim 2 wherein identifying a first synchronization construct that is suitable for use granting  
25 access to the object further includes:

obtaining a hash value from the memory address value, wherein indexing into the data structure using the at least part of the memory address value includes indexing into the data structure using the hash value.

30 4. A method for acquiring access to an object as recited in claim 3 wherein the information relating to address locations includes hash values of the address locations and the data structure is a hash table.

5. A method for acquiring access to an object as recited in claim 4 wherein the first synchronization construct is a lock and at least one of the plurality of synchronization constructs is the lock, and associating the first synchronization construct with the object includes locking the object using the first synchronization construct.

6. A method for acquiring access to an object as recited in claim 1 wherein the first synchronization construct is a lock, and associating the first synchronization construct with the object includes locking the object using the first synchronization construct.

7. A method for acquiring access to an object as recited in claim 6 wherein the lock is a non-nestable, global lock.

8. An object-based computing system, the object-based computing system comprising:

- a memory, the memory including a plurality of address locations;
- at least one thread;
- a plurality of objects, the plurality of objects including at least one object which is accessible to the at least one thread, wherein each of the plurality of objects is associated with a corresponding address of the plurality of address locations;
- at least one lock, the at least one lock being accessible to the at least one object; and
- a data structure, the data structure being arranged to associate the at least one lock with at least one corresponding address location selected from the plurality of address locations, wherein the data structure is arranged to be accessed by the at least one thread using a first value associated with the at least one object to identify the at least one lock.

9. An object-based computing system according to claim 8 further including:

a hashing mechanism, the hashing mechanism being arranged to create a hash value using information associated with the at least one object, wherein the first value is the hash value.

5           10.     An object-based computing system according to claim 9 wherein the at least one corresponding address location is a hash value of the at least one corresponding address location.

10           11.     A computer product for acquiring access to an object in an object-based system, the computer product comprising:  
              computer code for identifying a memory address value associated with the object;  
              computer code for identifying a first synchronization construct that is suitable for use in granting access to the object, wherein the first synchronization construct is  
15           identified using at least part of the memory address value;  
              computer code for determining when the first synchronization construct is available;  
              computer code for associating the first synchronization construct with the object when it is determined that the first synchronization construct is available; and  
20           a computer-readable medium that stores the computer codes.

              12.     A computer program product for acquiring access to an object as recited in claim 11 wherein the computer code for identifying a first synchronization construct that is suitable for granting access to the object includes:  
25           computer code for indexing into a data structure using the at least part of the memory address value, the data structure being arranged to associate a plurality of synchronization constructs with information relating to address locations in the object-based system, the plurality of synchronization constructs including the first synchronization construct, wherein at least one of the plurality of synchronization  
30           constructs is associated with more than one address location.

13. A computer program product for acquiring access to an object as recited in claim 12 wherein the computer code for identifying a first synchronization construct that is suitable for use granting access to the object further includes:

computer code for obtaining a hash value from the memory address value,  
5 wherein the computer code indexing into the data structure using the at least part of the memory address value includes computer code for indexing into the data structure using the hash value.

14. A computer program product for acquiring access to an object as  
10 recited in claim 13 wherein the information relating to address locations includes hash values of the address locations, and the data structure is a hash table.

15. A computer program product for acquiring access to an object as  
recited in claim 14 wherein the first synchronization construct is a lock and the  
15 plurality of synchronization constructs are locks, and the computer code for associating the first synchronization construct with the object includes computer code for locking the object using the first synchronization construct.

16. A computer program product for acquiring access to an object as  
20 recited in claim 11 wherein the computer-readable medium is one selected from the group consisting of a hard disk, a floppy disk, a data signal embodied in a carrier wave, a tape drive, an optical drive, and a CD-ROM.

17. A data structure for use in a multi-threaded, object-based computing  
25 system, the data structure being arranged to be stored in a memory of the computing system, the data structure comprising:

a plurality of index values; and *rows*

a plurality of lock identifiers, each lock identifier included in the plurality of  
lock identifiers being arranged to identify an associated lock in the computing system,  
30 wherein the plurality of lock identifiers is associated with corresponding index values  
included in the plurality of index values. *buckets*

18. A data structure according to claim 17 wherein at least one lock identifier included in the plurality of lock identifiers is associated with more than one index value included in the plurality of index values.

5 19. A data structure according to claim 18 wherein the data structure is arranged to be accessed by a thread using a value corresponding to a first index value included in the plurality of index values to identify a suitable lock for use in locking a first object included in the computing system.

10 20. A data structure according to claim 17 wherein the plurality of index values are hash values of address locations associated with the computing system.

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